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SUGGESTIONS REGARDING FALL-SOWN CROPS

WITH NOTES ON THE LIVE STOCK SITUATION

SEPTEMBER, 1919

UNITED STATES DEPARTMENT OF AGRICULTURE
CIRCULAR 142
OFFICE OF THE SECRETARY

Washington, D. C. September, 1919

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1919

CAREFUL consideration has been given by the Department of Agriculture to the agricultural situation, both in this country and abroad, with respect to the fall-sown grains and to live stock. This circular is issued with a view to making available to American farmers such information as will be helpful to them in their production programs during the next six months. Since it is too soon to estimate the consumption and production requirements for the spring-sown crops, only fall-sown crops are considered, with incidental reference to preparation for spring-sown crops.

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SUMMARY.

Conditions abroad are such that the United States probably will be justified in producing in 1920 an exportable surplus of 200 million bushels of wheat—somewhat more than before the war, but less than during the war.

This means that the crop should be about 830 million bushels.

To obtain this crop the Department of Agriculture suggests that 42 million acres of wheat be sown this fall and 20 million acres next spring. The acreage suggested for the fall sowing is about 85 per cent of the acreage sown in the fall of 1918 and about the same as in the fall of 1917. The acreage suggested for spring wheat is about 88 per cent of the spring-wheat acreage of each of the last two years.

The needs of Europe for rye probably will call for liberal exports of rye from the United States, though probably not more than 25 million bushels. If this country continues to consume rye in the increased quantities used during the war, a crop of 75 to 80 million bushels will be needed to permit these exports. A crop of that size will call for an area of 5½ to 6 million acres to be sown to rye.

On many fields in the North, East, and South where the soil is better adapted to rye than to wheat, the growing of rye may well be encouraged.

All grain for seed should be carefully selected and well cleaned and prepared before sowing. Treatment of the seed to prevent disease is also essential.

It is highly desirable to increase the acreage of grass, to provide cheaper feed, and to restore proper crop rotations, where these were interrupted by the need for larger grain crops. All fall-planted grain should be seeded to grass in States where a regular rotation including grass is practiced.

Prospective short crops of northern potatoes, onions, and cabbage this fall suggest an even brighter outlook for southern truck growers of these crops in the spring of 1920 than in the last two seasons.

The production of condensed milk in this country has doubled since the war began, and with this increase has gone a very great increase in our exports of this product. To supply their needs the countries of Europe probably will continue to import dairy products, at least for a time.

Wise conduct of dairy activities in this country will require the use of productive cows, economical feeding, and economical use of labor.

During the war the number of cattle increased 5.4 per cent in 14 European countries; hogs decreased 6.7 per cent in 13 countries; and sheep decreased 1 per cent in 13 countries.

The exports of meat and meat products from the United States increased very greatly. For the five years before the war they averaged 1,100 million pounds a year; in 1918 they were 3,058 million pounds; and in the first six months of 1919 they were 1,957 million pounds. Doubtless our exports of meat will decrease somewhat in the future. The bulk of Europe's imports of pork, however, must continue to come from the United States.

In our export trade the existing abnormal rate of foreign exchange is a considerable deterrent.

EUROPEAN WHEAT AND RYE REQUIREMENTS ESTIMATED FOR YEAR 1919–20.

Representatives of the United States Grain Corporation and of the Department of Agriculture visited the principal countries of western and central Europe the past summer especially to get first-hand information regarding probable production and requirements for bread grains in those countries. They have recently returned and report that Hungary, Rumania, and Bulgaria probably will have a surplus this year of about 60 million bushels of wheat and rye, and that the countries of western Europe probably will harvest about 613 million bushels, will require about 1,190 million bushels, and will need to import about 577 million bushels of both cereals. For the central countries of Europe they estimate the total production at 772 million bushels, consumption at 882 million bushels, and imports required to supply the apparent deficit about 110 million bushels. In some of the countries considered, wheat and rye are used more or less interchangeably for bread, and for some the data obtainable do not differentiate between the two grains. Therefore the figures for the two grains are combined. The combined totals for western and central Europe therefore indicate a production of wheat and rye this year of 1,385 million, consumption 2,072 million, and import requirements 687 million bushels.

This total is considerably less, and is probably more nearly correct, than the earlier reports of wheat and rye import requirements of these countries as estimated by the International Institute of Agriculture. Inasmuch, however, as some of the data obtained by the specialists are not available for publication, the Institute's estimate of wheat requirements may be used as a basis for discussion.

The accompanying table shows the net import requirements of cereals for European countries of deficient supply, as reported by the International Institute of Agriculture; the net export surpluses or deficits of export countries according to recent estimates; the prewar average exportable surpluses of the countries of eastern and southeastern Europe; and the estimated net surplus or deficiency of supply for the principal countries of the world if the possible surpluses or deficits of the countries of eastern and southeastern Europe be disregarded.

TABLE 1.—*Estimated cereal requirements and surplus for 1920, as indicated by information available up to July 25,*[1] *1919.*

[Millions of bushels.]

Country.	Wheat.	Rye.	Barley.	Corn.
EUROPE.	POSSIBLE REQUIREMENTS FOR IMPORTS, 1920.[2]			
Western and northern countries:				
United Kingdom, France, Spain, Italy, Belgium, Netherlands, Switzerland, Denmark, Norway, and Sweden	461	75	86	240
Central countries:				
Germany, Austria, and territory included in their prewar boundaries	182	143	203	57
Total of above requirements	643	218	289	297
EXPORTING COUNTRIES.	ESTIMATED SURPLUS FROM CROPS OF 1919.			
Canada	[3] 94	6	40	[4] 20
Argentina	[3] 124	[4] 1	.....	[5] 157
Australia	[3] 188	.....	1	2
India	[4] 29	.....	.....	[4] 6
New Zealand, Chile, Uruguay, and South Africa	9	.....	2	4
Total above surpluses	386	5	43	137
United States, 1919	[6] 308	47	26	449
Total in exporting countries, including the United States	694	52	69	586

[1] United States figures revised to Aug. 1.

[2] These import requirements are estimated from International Institute of Agriculture's estimates of average yearly consumption for the 5 years, 1909–1913, compared with production for latest years available.

[3] Includes carry over from previous year's crop of 15,000,000 bushels in Canada, 5,000,000 in Argentina, and 143,000,000 in Australia, as estimated by the Daily Trade Bulletin of Chicago and Broomhall's Corn Trade News of Liverpool.

[4] Deficit.

[5] No dependable estimates yet received for the corn crop harvested last winter (1918–19); the above figure consists of an assumed crop in 1918–19 equal to 1917–18, plus the "old crop" stocks reported on May 30, 1919, by the Review of the River Plate, of Buenos Aires.

[6] The following items were taken in estimating wheat surplus for the United States: Consumption of 5.3 bushels per capita for a population of 107,680,000 as for Jan. 1, 1920; seed for 71,526,000 acres (assuming 1920 the same as 1919) at 1.37 bushels per acre; carry over of 54,000,000 bushels, including flour stocks; and production of 923,355,000 bushels (September forecast).

TABLE 1.—*Estimated cereal requirements and surplus for 1920, etc.*—Continued.

Country.	Wheat.	Rye.	Barley.	Corn.
EASTERN AND SOUTHEASTERN EUROPE (OLD BOUNDARIES OF COUNTRIES).	SURPLUS (+) OR DEFICIT (−); AVERAGES FOR 1909–1913.			
Russia in Europe and Asia	+153	+67	+173	+28
Finland	.....	−15	.....	.....
Rumania	+ 53	+ 4	+ 18	+45
Bulgaria	+ 11	+ 2	+ 2	+ 9
Serbia	+ 4	.....	.....	+ 5
Hungary	+ 41	+14	+ 12	+ 8
Total net surplus 6 countries in an average prewar year	+262	+72	+205	+95
WORLD, EXCEPT EASTERN AND SOUTHEASTERN EUROPE.				
Surplus	+51	.....	.....	+289
Deficit	.....	−166	−219	.....

The estimates shown in the table are based upon reports of the International Institute of Agriculture at Rome and are believed to be conservative. Many unofficial estimates of European requirements are considerably higher than those set forth in the table. Such reports of acreage and prospective production of cereals in western Europe as are available indicate a slight increase in acreage this year over last year, but a smaller acreage than the prewar average; and, though weather conditions were favorable and crops were promising early in the season, unofficial reports indicate that conditions have been less favorable in recent months and the prospect is for a crop but little if any greater than in 1918. The countries of eastern and southeastern Europe are omitted from the world totals because trustworthy data are lacking, but it seems probable that their exportable surpluses, if any, will be small.

The influence of financial credit and ocean tonnage will be considered later, but assuming for the present that monetary exchange rates and foreign tariffs will not be prohibitive, it seems probable that Europe will draw upon Canada, the United States, Argentina, and Australia to supply its cereal import requirements, as the four countries named are the only ones which have surpluses worth considering.

WHEAT.

If it be assumed that the consumption requirements of western and central Europe are approximately the same this year and next as their prewar average, apparently 643 million bushels of wheat will have to be imported to supply their deficit. It is thought that the apparent shortage of 29 million bushels in India may be disregarded because it has already been partly supplied by imports from coun-

tries in the southern hemisphere, and the new crop of India will be available before the world surplus from the 1919 harvest is exhausted.

To supply the wheat deficits of Europe there are estimated surpluses of 100 million bushels in Canada, 150 million bushels in Argentina, 100 million bushels in Australia, and 300 million bushels in the United States, or a total of 650 million bushels. These totals do not agree exactly with those in the table because they are more nearly in accord with commercial estimates and are of later date than the reports of the International Institute of Agriculture from which the table is derived.

The net exportable surplus in the world from the 1919 crop is therefore about 7 million bushels. This surplus is negligible, indicating that the present supply is just about sufficient for the normal wheat requirements of the world until the harvest of 1920.

The extent to which European countries will increase their acreage of wheat for the 1920 harvest is problematical. It may be presumed, however, that owing to the accumulated shortage in those countries and the high prices for bread grains that have prevailed, every effort will be made to sow a larger acreage which will insure under average conditions a larger crop. It seems probable, also, that conditions will become more settled in the countries of eastern and southeastern Europe in the course of another year, so that we may expect those countries to produce at least a portion of their prewar surplus for export, which should be available after the harvest of 1920. In Canada and Australia returning soldiers will add to the farm labor supply, and an exportable surplus somewhat greater than their surpluses of this year may be expected. Argentina, whose export trade was severely hampered by financial difficulties and restrictions and lack of shipping facilities during the war, may be expected to increase production and have more than an average surplus for export. India, which this year has to import wheat, normally exports about 75 million bushels and may be expected next year to contribute to the exportable surplus of the world. On the whole, it seems probable that with average conditions the countries of deficient supply in Europe will, in 1920, more nearly supply their consumption requirements from their own production and from the surpluses of exporting countries which compete with the United States than in any year since 1914. However, man power is depleted in Europe and both agricultural and transportation equipment are run down, so that full prewar production can hardly be expected in 1920.

These conditions point to the desirability of producing in the United States an exportable surplus somewhat in excess of the prewar average, but less than was necessary during the war. The average exports from the United States for the five-year period ending 1914 were about 155 million bushels. For the four years from 1915

to 1918, inclusive, the average exports of wheat, including flour, were nearly 216.6 million bushels.

Apparently, the United States will be justified in undertaking to produce an exportable surplus in 1920 of about 200 million bushels.

For home consumption in 1920 the United States will require about 630 million bushels, which is an allowance of 550 million bushels for food and feed, or 5.3 bushels per capita for a population of nearly 104 million; and an allowance of 80 million bushels for seed, which is an average of 1.3 bushels per acre for 60 million acres. If we add to this 200 million bushels for export, the crop requirement indicated for 1920 will be about 830 million bushels. This is approximately the average production of wheat in the United States for the five years from 1915 to 1919, inclusive. As the average production for the last five years includes the bumper crop of 1915, the partial failures of 1916 and 1917, the low acre yields of 1916 and 1919, and the large abandonment of winter wheat acreage in 1917, as well as the slight abandonment in 1919, it is believed that the five-year average will serve as a safe guide for the crop of 1920. Table 2 shows in millions the acreage sown, production, consumption, and exports for the last five years.

TABLE 2.—*United States wheat crops.*

[Expressed in millions; i. e., 00.000 omitted, except in yield column.]

Year of harvest.	Acreage sown.			Yield, average per acre.	Production.	Consumption (difference between production and exports).	Exports.
	Winter.	Spring.	Total.				
	Acres.	*Acres.*	*Acres.*	*Bushels.*	*Bushels.*	*Bushels.*	*Bushels.*
1915	42.0	19.2	61.2	16.6	1,025.8	782.7	243.1
1916	39.2	17.6	56.8	10.6	636.3	432.7	203.6
1917	40.1	17.8	57.9	10.9	636.7	504.1	132.6
1918	42.3	22.4	64.7	14.2	917.1	629.7	287.4
1919	49.3	22.6	71.9	13.1	923.3	623.3	300.0
Average	42.6	19.9	62.1	13.3	827.8	594.5	233.3
Suggested for 1920 harvest	42.0	20.0	62.0	13.3	830.0	630.0	200.0

The suggested acreage for fall-sown wheat is approximately 85 per cent of the area sown in the fall of 1918 and is about the same as was sown in the fall of 1917. The suggested area to be sown in spring wheat is approximately 88 per cent of the area sown in each of the last two years. The combined acreage of winter and spring wheat suggested for 1920 is about 86 per cent of the acreage sown for the 1919 crop, slightly more than the acreage sown for the bumper crop of 1915, and about 4 per cent less than the area sown for the 1918 crop.

Table 3 shows the acreage sown to winter wheat in each State for the crops of 1915 to 1919, inclusive.

TABLE 3.—*Winter wheat in the United States.*

[000 omitted, except in yield column.]

State.	Acreage sown in fall of—					Five-year average.		
	1914	1915	1916	1917	1918	Area.	Yield per acre.	Production.
	Acres.	*Acres.*	*Acres.*	*Acres.*	*Acres.*	*Acres.*	*Bushels.*	*Bushels.*
New York	395	445	445	450	477	442	21.4	9,146
New Jersey	81	93	94	106	112	97	18.9	1,757
Pennsylvania	1,399	1,415	1,457	1,530	1,652	1,491	17.9	25,740
Delaware	128	128	136	146	155	139	14.3	1,897
Maryland	658	665	695	770	816	721	15.6	10,891
Virginia	1,281	1,335	1,330	1,313	1,326	1,317	12.6	15,703
West Virginia	306	327	323	355	373	337	14.2	4,656
North Carolina	990	975	1,025	1,035	1,025	1,010	9.4	8,656
South Carolina	233	220	225	210	208	219	10.6	2,137
Georgia	345	348	393	400	408	379	10.3	3,424
Ohio	2,101	1,807	1,950	2,350	2,608	2,163	18.8	39,183
Indiana	2,820	2,256	2,116	2,370	2,891	2,491	16.7	38,122
Illinois	2,934	2,250	2,365	2,602	3,252	2,681	17.4	41,713
Michigan	963	830	896	941	997	925	17.9	15,639
Wisconsin	103	101	101	112	103	104	21.6	1,873
Minnesota	62	80	87	85	74	78	17.3	1,182
Iowa	525	410	450	375	750	502	19.0	8,418
Missouri	2,859	2,300	2,300	3,120	4,243	2,964	13.4	37,883
South Dakota	129	165	182	135	108	144	16.6	2,006
Nebraska	3,674	3,375	3,645	3,135	3,511	3,468	15.1	44,212
Kansas	8,900	8,650	9,479	9,897	11,184	9,622	12.8	99,073
Kentucky	968	950	850	952	1,057	955	11.2	10,109
Tennessee	901	900	800	765	811	835	9.6	7,236
Alabama	105	118	120	144	173	132	10.0	1,207
Mississippi	6	7	18	36	42	22	16.1	291
Texas	1,497	1,730	1,725	1,622	2,109	1,737	13.0	19,531
Oklahoma	3,231	3,200	3,400	3,264	3,590	3,337	11.9	37,440
Arkansas	226	265	220	260	356	265	11.6	2,825
Montana	711	775	775	775	705	748	15.8	10,851
Wyoming	62	75	80	87	84	78	20.6	1,504
Colorado	321	400	420	585	626	470	20.1	8,819
New Mexico	55	72	180	140	182	126	15.7	1,657
Arizona	41	43	37	44	42	41	27.2	1,037
Utah	253	256	246	165	172	218	17.5	3,598
Nevada	23	23	5	5	5	12	25.1	282
Idaho	405	364	335	315	331	350	22.3	7,593
Washington	1,156	867	754	422	992	838	24.6	19,507
Oregon	692	590	450	650	812	639	20.7	13,232
California	473	393	425	633	899	565	16.7	8,201
United States	42,012	39,203	40,534	42,301	49,261	42,662	15.0	568,230

It is unnecessary to remind those familiar with the situation during the past year that in some sections of the country the acreage of winter wheat sown in the fall of 1918 was considerably in excess of what the general experience of farmers had proved desirable and conducive to the largest total production of food and feed crops. The 49,261,000 acres of winter wheat then sown was practically 7,000,000 acres in excess of the area sown in the fall of 1917, the next largest acreage of the five-year crop period 1915–1919. This increase of one-sixth over the next highest year, and substantially the same excess over the five-year average, was due to several concurrent causes, rarely experienced in one season. Among these were the guaranteed price for the crop sown in 1918, the patriotic desire of the American farmer to provide the food needed for the winning of the war, and the unusually favorable weather for preparing land for wheat in most portions of the winter wheat territory in the fall of 1918. Undoubtedly in their enthusiasm some farmers in the winter wheat belt enlarged their wheat acreage beyond the dictates of sound agriculture, and in some regions the desire to produce home food supplies resulted in sowings of wheat where profitable crop returns could not be expected unless in an unusually favorable season. The experience of the present season has confirmed that of many years that throughout most of the corn belt spring wheat is a hazardous crop, yielding less grain and of less satisfactory quality than winter wheat.

It is to be expected, therefore, that with the approaching return of normal conditions of supply and demand for foodstuffs throughout the world, some reduction of acreage of winter wheat below that of the war emergency crop of the current season in the United States should occur this year. Assuming that conditions throughout the important winter wheat districts are fairly favorable for sowing, as they appear to be at the beginning of September, it is probable that with normal conditions the country will be amply supplied if an acreage of 42,600,000 acres (the average of the last five years) is sown on lands suitable and well prepared for this crop.

A study of Table 3 will show where the greatest expansion in wheat acreage was made in the last few years and where growers should consider most seriously the question of readjustment of wheat acreage. At this time it should be borne in mind that wheat grown in one section comes into competition with wheat grown in other sections in the United States.

In general, it will be the part of wisdom to hold the wheat acreages to the soils and climates where the yield and quality are satisfactory in the average year, devoting the lighter soils, both North and South, to rye or spring grains, including corn, to which they are better adapted.

RYE.

Rye is closely associated with wheat as a bread grain in Europe. From Table 1 it appears that the countries of northern and western Europe will need to import 75 million bushels and the countries of central Europe 143 million bushels, or a total of 218 million bushels. The only exportable surpluses of rye in sight appear to be 6 million bushels in Canada and 47 million bushels in the United States, or a total of 53 million bushels. This leaves an apparent deficit of 165 million bushels. The shortage of 1 million bushels in Argentina, as shown in Table 1, may be disregarded. Prior to the war the countries of eastern and southeastern Europe produced on the average a surplus of about 72 million bushels; but, as in the case of wheat, conditions are so unsettled in those countries that it is doubtful whether they will have much rye for export this year. The large deficit in the present supply would indicate that Europe will call for liberal exports of rye from the United States this season.

Table 4 shows the area sown, the area harvested, yield per acre, production, consumption, and exports of rye in the United States for the last five years.

TABLE 4.—*United States rye crops.*

[Expressed in millions; i. e., 00,000 omitted, except in yield column.]

Year of harvest.	Acreage.		Yield per acre sown.	Production.	Consumption (difference between production and exports).	Exports.
	Sown.	Harvested.				
	Acres.	*Acres.*	*Bushels.*	*Bushels.*	*Bushels.*	*Bushels.*
1915	3.2	3.1	17.1	54.1	38.8	15.3
1916	3.5	3.2	14.1	48.9	35.2	13.7
1917	4.5	4.1	14.1	62.9	45.7	17.2
1918	6.7	6.2	13.4	90.2	53.7	36.5
1919	6.8	6.6	12.4	84.6	49.6	[1] 35.0
Average	4.9	4.6	13.9	68.1	44.6	23.5

[1] Estimated.

Rye has many uses on the farm, so that the acreage harvested for grain is usually about 6 per cent less than the acreage sown. On the basis of acreage sown, the average yield for the last five years has been about 14 bushels per acre, total production about 68 million, exports about 23½ million, and consumption about 44½ million bushels. Exports increased from about 28 per cent of the quantity produced in 1915–1917 to about 40 per cent in 1918.

As in the case of wheat, it may be presumed that European countries will probably attempt to sow larger acreages in the fall of

1919 than at any time during the war, partly because of their need for rye as a bread grain, partly because Europe will try to increase live-stock production, and will need rye as a feed, and partly because both food and feed are relatively short in supply and high in price.

It should be borne in mind, also, that wheat and other crops can be substituted for rye, both as a bread grain and feed, and that for feeding purposes many other substitutes are available, so that a large apparent deficit in the quantity of rye required for normal consumption in the countries of Europe does not mean that those countries will necessarily try to import all the rye available from other countries. Exports of rye from the United States crops of 1918 and 1919 were abnormal, more than 100 per cent greater than in any previous year. Now that the pressure of war demand has ceased, it does not seem probable that exports next year will greatly exceed 25 million bushels. The consumption of rye in this country was stimulated by the war to about 50 million bushels. If this rate of consumption is maintained, a crop of 75 to 80 million bushels will be necessary to provide 25 million bushels for export, indicating a total area of $5\frac{1}{2}$ to 6 million acres.

While there has been a marked increase in the acreage devoted to rye during the last two or three years, the greater portion of this increase has occurred in the single State of North Dakota. The reason for expansion there was the fact that winter wheat could not be grown successfully while winter rye could, and a winter crop served to save labor and distribute farm work to better advantage throughout the year. The rye was commonly drilled in wheat stubble, a practice which favored a great increase in grasshoppers and has resulted in heavy losses to farmers this year. This fact and recent climatic conditions in North Dakota have been such as to discourage rye production, and it is doubtful if recent acreage will be maintained in that State, although the acreage doubtless will remain much larger than under prewar conditions.

In the northern, eastern, and southern portions of the United States there are many fields which, by reason of rather poor or rather sandy soil, are better adapted to the production of rye than to that of wheat. On such fields the growing of rye may well be encouraged.

Table 5 shows the rye acreage sown in each State during the last five years, the average acreage during that period, average yield per acre, and average production.

TABLE 5.—*Rye in the United States.*

[000 omitted, except in yield column.]

State.	Acreage sown in fall of—					Five-year average.		
	1914	1915	1916	1917	1918	Area.	Yield per acre.	Production.
	Acres.	*Acres.*	*Acres.*	*Acres.*	*Acres.*	*Acres.*	*Bushels.*	*Bushels.*
Vermont	1	1	1	1	1	1	19.6	20
Massachusetts	4	3	3	4	4	4	19.5	67
Connecticut	8	8	8	12	12	10	20.7	182
New York	165	165	150	140	136	151	17.8	2,221
New Jersey	81	80	80	75	79	79	18.2	1,303
Pennsylvania	292	280	280	265	278	279	17.0	4,379
Delaware	1	1	1	1	1	1	14.8	15
Maryland	30	28	29	31	31	30	15.6	410
Virginia	93	96	96	105	105	99	12.8	1,071
West Virginia	18	22	23	24	24	22	14.0	280
North Carolina	86	85	86	65	66	78	9.6	523
South Carolina	3	7	20	20	20	14	10.4	137
Georgia	15	15	20	21	21	18	8.9	153
Ohio	123	80	100	120	116	108	16.7	1,697
Indiana	160	195	210	415	427	281	15.1	4,526
Illinois	52	50	52	210	216	116	17.4	2,174
Michigan	394	350	378	480	581	437	14.8	6,147
Wisconsin	444	425	446	475	489	456	17.7	7,558
Minnesota	312	370	430	452	457	404	17.6	6,842
Iowa	62	57	60	63	66	62	17.9	1,012
Missouri	31	28	35	38	40	34	13.0	381
North Dakota	200	360	1,066	2,200	2,068	1,179	11.4	11,404
South Dakota	110	275	360	600	576	384	17.3	6,769
Nebraska	212	201	225	400	412	290	15.3	4,178
Kansas	57	75	106	175	192	121	14.3	1,599
Kentucky	35	34	35	65	65	47	12.2	531
Tennessee	27	32	31	30	32	30	9.9	223
Alabama	8	8	8	4	4	6	10.7	43
Texas	2	2	2	4	4	3	11.9	36
Oklahoma	8	10	10	10	11	10	14.0	98
Arkansas	1	1	10	2	2	3	10.8	19
Montana	11	12	11	25	100	32	14.3	211
Wyoming	9	16	20	30	31	21	15.3	290
Colorado	32	32	30	78	75	49	13.9	791
Utah	15	13	15	16	18	15	11.7	160
Idaho	3	3	3	4	6	4	16.5	58
Washington	9	8	8	7	10	8	13.5	105
Oregon	27	35	32	41	43	36	14.1	460
California	12	11	.....	.....	.....	5	[1] 13.5	43
United States	3,153	3,474	4,480	6,708	6,820	4,922	14.9	68,116

[1] Two-year average, 1914–15.

SELECTION AND PREPARATION OF SEED GRAIN.

Very much of the wheat harvested this year failed to mature properly, with the result that much of it is light in weight, and most of it contains a large proportion of shriveled kernels. U usual care should be taken, therefore, in preparation of wheat for sowing. Plump, well-developed kernels sometimes can be obtained by careful grading of even light-weight wheat. The seed can usually be greatly improved by fanning and grading, even if plump, well-developed seed can not be secured. Since failure of the kernels to develop has often been caused by disease infection, the removal of the lightest kernels will improve the quality of the seed. The fanning and grading will also remove weed seeds and foreign material, thus allowing more even seeding and tending to insure a better stand and a cleaner crop. The same statement applies to rye for seed, though to a somewhat less extent, because of its relative freedom from destructive diseases.

CEREAL SMUTS.

The cereal smuts cause very heavy losses annually, and it is important that measures should be taken to reduce the damage caused by them. Estimates indicate that during the season of 1918 smuts decreased the wheat crop by 25 million bushels, the oat crop by 110 million bushels, and the barley crop by 6 million bushels. Fortunately, the most destructive of these smuts can be almost entirely prevented by chemical treatment of the seed grain. In the States east of the Rocky Mountains the formaldehyde method has given very satisfactory results in preventing bunt of wheat. Either the soaking or the dipping method may be employed. One pint of commercial formaldehyde should be diluted with 40 gallons of water. The so-called dry method of using formaldehyde has not proved satisfactory for preventing bunt or stinking smut in wheat and the seed wheat is frequently injured, although this method has been used successfully in the treatment of oats.

Loose smut of wheat is particularly destructive in the southern portions of the winter-wheat belt. This smut can be prevented by the hot-water treatment. In this method the seed grain must first be soaked in cold water from four to six hours; it is then dipped in water heated to a temperature of 129° F. and this temperature maintained for 10 minutes. The seed grain should then be immediately spread out to dry. Owing to the necessity for extreme accuracy in maintaining the proper temperature, the hot-water treatment is troublesome and difficult to use without danger of killing the seed.

The formaldehyde method has proved generally satisfactory for preventing oat smuts, and farmers who plant winter oats will avoid serious losses if the seed is treated.

During the last two years the Department of Agriculture and the State agricultural colleges have carried on a campaign to increase the number of farmers who treat their seed grain for preventing smut. This work has resulted in a gratifying increase in the acreage sown with treated seed in many sections.

WHEAT SCAB.

Winter wheat east of the Great Plains was heavily infected with scab this year. Likewise many fields of spring wheat through this area were left uncut, owing chiefly to the ravages of scab. The States suffering the greatest losses from scab of both spring and winter wheat include Missouri, Illinois, Iowa, South Dakota, Minnesota, Wisconsin, Michigan, Indiana, Ohio, Kentucky, Tennessee, North Carolina, Virginia, West Virginia, Maryland, and Pennsylvania.

Reduce wheat scab by use of clean seed, seed treatment, plowing under of cornstalks and stubble, and general clean-up methods.

Investigations are in progress by the Department of Agriculture, in cooperation with a number of State experiment stations and individual farmers, to learn more about wheat scab and methods of controlling it.

No entirely satisfactory control of this disease has been developed, because the scab fungi develop on so many different kinds of grain and grasses, and on cornstalks, stubble, straw, and other trash. Two things are important in the control of the disease: (1) The best wheat obtainable should be used for seed—this should be thoroughly cleaned and then treated by the formaldehyde method recommended for the prevention of smut; (2) this wheat should be sown on thoroughly plowed land, wherever practicable, where the old cornstalks, wheat stubble, and grass straw have been entirely plowed under. This can be accomplished by use of a drag chain. All grass and straw should be burned or otherwise removed from hedges, fence rows, fence corners, and near-by waste places at any convenient time from late fall to early spring. These waste places should be either plowed or burned off.

BLACK STEM RUST.

Of the several epidemics of black stem rust the most destructive was that occurring during the summer of 1916. At that time a widespread and very severe epidemic occurred, which is estimated to have reduced the production of wheat in the States of the upper Mississippi valley by more than 200 million bushels.

A campaign to control black stem rust of wheat by the eradication of the common barberry and its horticultural varieties was begun two years ago and is continuing. This campaign covers the following

13 States: Colorado, Illinois, Indiana, Iowa, Michigan, Minnesota, Montana, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin, and Wyoming. This area covers an important part of the winter wheat belt and practically the entire spring wheat belt except that of the Pacific northwest.

Weather conditions during the late spring and summer of 1919 were again unusually favorable to the development and rapid spread of black stem rust throughout the greater part of the eradication area. As local epidemics of black stem rust developed, it is probable that another general and severe epidemic would have occurred had not a considerable proportion of the barberry bushes in this area already been removed. It is believed that through this campaign, which is still in progress, the risk of serious damage by this disease has been considerably reduced.

MEADOWS AND PASTURES.

While accurate statistics of the acreage of perennial grasses and legumes relied upon for hay and pasturage are lacking, it is certain that the acreage was not increased during the war, but, on the contrary, was reduced and the land utilized for cereals and other food crops. It is highly desirable to increase the acreage of grass, both on account of the very high prices of concentrated feeding stuffs and to restore desirable crop rotation practices that will maintain productivity in regions of general farming. Many farmers in the Northern and Western States who endeavored to correct this last year by seeding down small-grain acreages were prevented by the disastrously dry weather of the early summer of 1919, which killed the new seeding of clover in the grain crops. The importance of renewed effort to restore normal acreages of grass and clover during the present fall and next spring can hardly be overestimated.

It would seem wise policy at present to seed all fall-sown grain to grass in all States where a regular rotation including grass is practiced. In the preparation of the seed bed for fall grain and grass, particularly if clover is to be sown in the same field next spring, it is highly desirable that lime be applied wherever the soil is low in this substance, and some phosphate should be supplied in addition. The use of lime and phosphate will greatly increase the likelihood of securing a good stand and subsequent high yield of clover. Clover seed is scarce and high priced, and this condition probably will continue for at least a year and perhaps several years. The scarcity of clover seed emphasizes the importance of good preparation of the soil in the fall, as this will make it possible to secure a stand of clover with a minimum amount of seed. The conservation of the limited supply of clover seed is important.

Land which normally has been in permanent pasture but which during the stress of war was used for other crops may well be restored to grass, seeding the grass in a crop of fall grain.

It is always easy to plow up grassland for wheat or other crops when there is a clear demand for increased supplies of grain. In the absence of such need, at least a normal acreage of grass is highly advisable, particularly in view of the high cost of labor and of concentrated feeds.

Where pastures have been reduced to too great an extent it will in many cases be advisable to sow rye for winter and early spring grazing.

WINTER-GROWN TRUCK CROPS.

The conditions affecting such important southern winter-grown truck crops as potatoes, onions, and cabbage are deserving of the attention of truckers in the South.

POTATOES.

The potato crop now being harvested and stored in 13 States producing the commercial potato crop of the northern United States showed a condition September 1 of 69.5 per cent, as compared with 75.1 per cent for a 10-year average.

The total estimated crop in these States at present is 218,420,000 bushels, as compared with 250,686,000 bushels in 1918, and 280,395,000 bushels in 1917.

Southern potato growers would do well to secure their supply of seed for winter and spring planting while the northern harvest is in progress in order that tubers from disease-free crops may be secured. With a crop that bids fair to be 32,266,000 bushels short of that of 1918 the outlook for southern truck production in the spring of 1920 is even more promising than that of 1919.

ONIONS.

The most recent estimate of the extent of the fall harvest of onions in the United States is that the 14 States producing the crop which provides the winter supply of this vegetable will harvest 11,069,010 bushels, as compared with 13,438,200 bushels in 1918 and 12,308,900 bushels in 1917. With a total production of fall onions of approximately 11,000,000 bushels and with normal distribution and consumption the competition of northern stored onions with the southern Bermuda crop in the spring of 1920 is likely to be less severe than during either the season of 1919 or that of 1918. The excess acreages planted by the southern growers in the fall of 1917 resulted in a severe financial loss at harvest time in 1918. This should be borne in mind in planting the acreage for the 1920 harvest.

The fall harvest of northern onions promises to be about 2,438,000 bushels short of the 1918 crop and about 1,300,000 bushels short of the 1917 crop. This would suggest a somewhat brighter outlook for southern Bermuda onion growers than has existed during the last two seasons.

CABBAGE.

The cabbage crop in the nine northern States in which late summer cabbage is exclusively grown bids fair to be the smallest harvested since 1916. Present prospects indicate a crop for the present year of 388,323 tons, as compared with 565,240 tons in 1918 and 475,220 tons in 1917. The short crops of both cabbage and potatoes this season approach more nearly the conditions of 1916, when both these vegetables were scarcer and higher than in any other year during the decade.

Southern cabbage growers will therefore do well to provide ample seed beds from which to plant an acreage sufficient in a measure to make up the deficiency which will exist in those markets where stored cabbage usually plays an important part.

DAIRY PRODUCTS.

PRODUCTION.

During 1918 the dairy cow population of the United States remained almost stationary. Gains were made in a few States, chiefly in the South, and decreases occurred in several States, while most of the States had about the same number of milk cows on January 1 of this year as the year before. There was an increase during the year in the production of dairy products, as well as an increase in the consumption of milk in most cities.

TABLE 6.—*The trend of factory production of dairy products.*

Year.	Creamery butter.	Factory cheese.	Condensed milk.
	Pounds.	*Pounds.*	*Pounds.*
1909	627, 145, 865	311, 175, 730	495, 197, 844
1914	786, 003, 489	377, 573, 409	875, 507, 438
1916	760, 030, 573	314, 716, 739	997, 835, 115
1917	743, 895, 068	372, 540, 203	1, 353, 605, 594
1918	793, 289, 301	352, 621, 615	1, 675, 477, 360
1919 (6 months)	417, 006, 215	141, 972, 534	1, 031, 476, 106

A comparison of 1918 with 1917 shows an increase in production of 50 million pounds of creamery butter and a decrease of 20 million pounds of cheese. Condensed milk production, however, increased more than 300 million pounds.

A comparison of 1918 with 1914 indicates that during the last four years a slight increase has occurred in the production of factory butter, amounting to only 7 million pounds. The production of cheese has decreased 25 million pounds, and the condensed milk production has doubled, it having increased from 875 million pounds to 1,675 million pounds. The amount of milk required for this increase in condensed milk is 2 billion pounds, which is more than half the quantity required for all of the factory cheese made in this country.

If Europe consumes during the coming year the prewar normal amounts of dairy products, it will be necessary to supplement domestic production and supplies received from countries other than the United States with exports from the United States. The necessity of European countries practicing greater economy by purchasing from foreign countries very limited food supplies other than actual necessities, the high rates of exchange prevailing, the large use of dairy substitutes, and probable lower normal rate of consumption than existed in prewar periods, are factors which will tend to limit possible exports of dairy products from the United States to Europe.

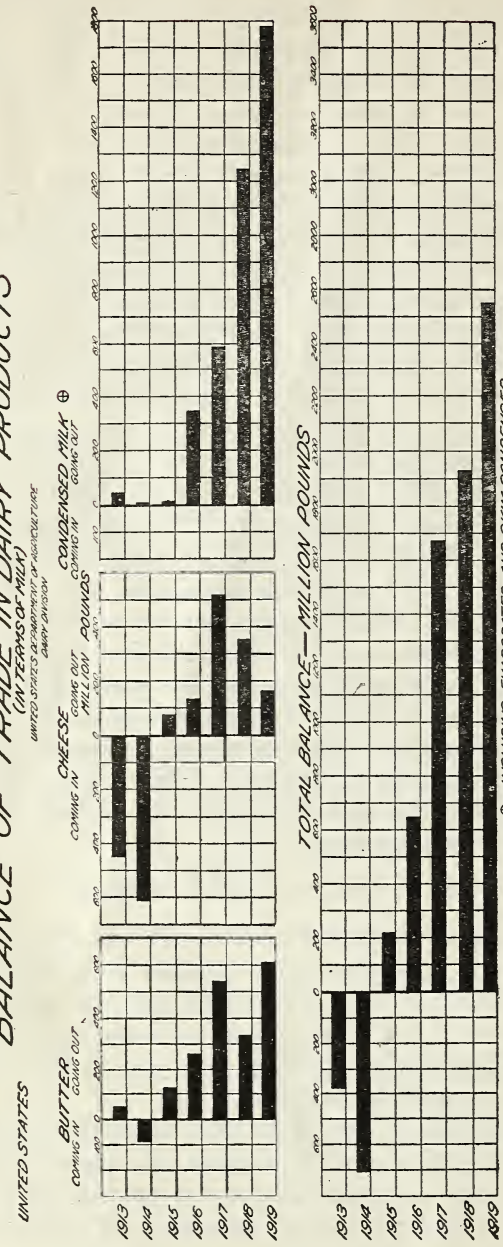
It is even now difficult to secure definite information as to the number of dairy cattle killed in Europe during the war. Their products decreased enormously, more than the number of cattle, owing to the lack of feeds and labor, but it is estimated that from 3 to 5 million dairy cows were destroyed during the five years of the war. Some of the neutral countries increased the number of their dairy cows, and some of the warring nations had increased the number of their dairy animals by the beginning of this year. Still it is probable that several years will be required for the countries of Europe to get back to their normal cow population.

FOREIGN TRADE IN DAIRY PRODUCTS.

Before the war we imported more butter and cheese than we exported, while our condensed milk imports about equaled our exports. About 1915 our exports increased and our imports decreased until last year there was a net export so large that about 2 billion pounds of milk, or 100 pounds from each cow in the United States, were required to make the products.

If the comparison is made with 1914, when the balance of trade was in favor of imports, an equivalent of almost 700,000 cows is required to produce the milk necessary to provide the products that were formerly imported and to take care of our present export trade.

The chart on page 20 shows the balance of trade in dairy products.


UNITED STATES
BALANCE OF TRADE IN DAIRY PRODUCTS
(IN TERMS OF MILK)
UNITED STATES DEPARTMENT OF AGRICULTURE
BUTTER
COMMON
CHEESE
COMMON
CONDENSED MILK ⊕
COMMON
TOTAL BALANCE—MILLION POUNDS
⊕ INCLUDING EVAPORATED AND SKIM CONDENSED

Our foreign trade in the future, of course, is unknown, yet there are already indications that our exports will decrease and our imports increase, with the exception of condensed milk. Condensed milk has been largely used by the armies, but as the armies are demobilized a demand for this product is arising among the civilians, and increased shipping space has tended to increase the exports of condensed milk. More of this product was exported monthly during the last few months than was ever exported in any previous month. During the early part of this year the exportation of butter was considerable, but this has decreased, and now amounts to less than a million pounds a month, while the imports decreased until for the month of May actually more butter was imported than was exported.

The exports of cheese are also small, amounting to about 2 million pounds a month, with a growing importation amounting to over a million pounds a month.

TABLE 7.—*Exports and imports of dairy products.*

Fiscal year.	Exports (domestic).	Imports for consumption.	Excess of exports over imports.	Excess of imports over exports.
Condensed milk:	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
1914	16,209,082	14,951,086	1,257,996	.....
1915	37,235,627	33,613,389	3,622,238	.....
1916	159,577,620	18,173,426	141,404,194	.....
1917	259,141,231	18,356,416	240,734,815	.....
1918	528,759,232	29,926,931	498,832,301	.....
1919	728,740,509	20,183,723	708,556,786	.....
Cheese:				
1914	2,427,577	64,497,470	.....	62,069,893
1915	55,362,917	48,097,118	7,265,799	.....
1916	44,394,301	31,420,537	12,973,764	.....
1917	66,050,013	14,685,866	51,364,147	.....
1918	44,303,076	8,582,717	35,720,359	.....
1919	18,794,853	2,442,306	16,352,547	.....
Butter:				
1914	3,693,597	7,788,390	.....	4,094,793
1915	9,850,704	3,695,882	6,154,822	.....
1916	13,487,481	720,961	12,766,520	.....
1917	26,835,092	523,808	26,311,284	.....
1918	17,735,966	1,596,633	16,139,333	.....
1919	33,739,960	4,131,469	29,608,491	.....

The 1919 figures from Monthly Summary.

FEED FOR DAIRY COWS.

The prices of feed are high. This calls for especial attention to economical feeding. Where concentrates must be purchased, it is suggested that they be bought in quantities instead of in small lots. Cooperative buying of feeds should be resorted to wherever this is practicable. With the high price of feeds, it is especially important that attention be given the pastures. Enormous returns can be secured from good pastures, considering the feeds that are saved while

cows are supplied good grass. During the dry time, which often comes in summer and fall, supplemental feeding will prevent cows from falling off in production. It is always difficult to get them back to their normal production when good grass is restored, if proper attention is not given to them at this time. Indications are that roughage in most sections will be in abundance, and it is suggested, therefore, that these various roughages be used to their limit of profitableness.

Economical feeding requires that cows be fed according to their production. With high prices of feed, it is especially important that cows that respond to increased feed be supplied to their economical limit, and that animals that do not respond to increased feed with the necessary quantity of milk be supplied with smaller amounts of feed. An economical way of learning how dairy cows respond to feed is through the cow-testing associations. These organizations should be encouraged.

LABOR IN THE DAIRY.

The second most important factor in the production of milk is labor. This also commands a high price. It is therefore important that it be utilized to the fullest advantage. Devices for saving labor should be considered for dairy farms, and it is especially recommended that the dairymen with fairly large herds give special consideration to the desirability of securing milking machines.

From the standpoint of the cost of labor, as well as from the standpoint of economical feeding, it is important that herds be developed for economical production. In general, the high producer is the most profitable. There never was a time when it was so important to have cows of high production. Such animals require less labor and feed per hundred pounds of milk produced.

ECONOMICAL PRODUCTION.

There are two ways of securing high-producing herds: First, by the use of good bulls, and, second, by the selection of cows. The surest and least expensive way of increasing the profitableness of American cows is to use good bulls. Animals of established qualities in breeding should be maintained as long as possible. The practice of using only young bulls because they are easier to handle should be discouraged. Simple pens have been devised by the Department of Agriculture, which make it possible to handle large bulls with safety. The bull association is recommended as a means of extending the use of good bulls further than would be possible by having the bulls owned by individual farmers with small herds. The policy should be to use all of the good bulls in America to breed as many cows as possible for as long a period as they are useful.

Improvement can also come by selection, keeping only cows that are good producers.

CARE OF MILK AND CREAM.

Attention is called to the importance of producing dairy products of a high quality. Not only should milk and cream be cared for in the way to assure their being marketed, but they should be produced and cared for in a way to make it possible to produce from them the highest class of products. It is especially suggested that the cream be produced and cooled in a way to insure its reaching market in the best possible condition. It is urged that it be produced under clean conditions, thoroughly cooled, and delivered as often as is practicable.

MEAT ANIMALS AND POULTRY.

The following table gives the number of cattle, hogs, and sheep before the war and in either 1918 or 1919 in 14 of the most important countries engaged in the international trade (imports and exports) in meat and meat products prior to the war. This table does not take into consideration the number of animals in what constituted the former Empires of Austria-Hungary and Russia or in the Balkan States, for it has not been possible to obtain recent figures as to the number in those territories.

TABLE 8.—*Live stock in 14 countries most important in international meat trade.*

Country.	Cattle.			Swine.			Sheep.		
	Before war.	After war.	Per cent change	Before war.	After war.	Per cent change	Before war.	After war.	Per cent change
9 countries of western Europe:									
United Kingdom	12,185,000	12,311,000	+ 1.0	3,953,000	2,809,000	−28.9	27,964,000	27,063,000	− 3.2
France	14,807,000	13,315,000	−10.0	7,048,000	4,021,000	−42.9	16,213,000	9,496,000	−41.4
Italy	6,646,000	6,186,000	− 6.9	2,722,000	2,337,000	−14.9	11,163,000	11,752,000	+ 5.3
Switzerland	1,443,000	1,530,000	+ 6.0	570,000	364,000	−36.1	161,000	225,000	+39.7
Belgium	1,849,000	899,000	−51.4	1,412,000	318,000	−77.5	(185,000)	.....	.....
Netherlands	2,097,000	1,969,000	− 6.1	1,350,000	450,000	−66.7	842,000	437,000	−48.1
Denmark	2,463,000	2,142,000	−13.0	2,487,000	583,000	−76.7	515,000	247,000	−50.1
Sweden	2,721,000	2,584,000	− 5.0	968,000	634,000	−34.4	988,000	1,409,000	+42.6
Germany	20,994,000	17,227,000	−17.9	25,659,000	10,080,000	−60.8	5,521,000	5,299,000	− 4.0
Total	65,205,000	58,163,000	−10.8	46,179,000	21,596,000	−53.2	63,367,000	55,928,000	−11.7
Gain or loss	.....	−7,042,000	.....	.....	−24,583,000	.....	.....	−7,439,000	.....
5 surplus countries:									
United States	56,592,000	67,866,000	+19.9	58,933,000	75,587,000	+28.3	49,719,000	49,863,000	+ 0.3
Canada	6,533,000	10,051,000	+53.8	3,610,000	4,290,000	+18.8	2,175,000	3,053,000	+40.0
Argentina	25,867,000	27,050,000	+ 4.6	2,901,000	.....	.....	43,225,000	44,850,000	+ 3.8
Australia	11,745,000	11,040,000	− 6.0	1,026,000	1,007,000	− 1.9	92,047,000	91,676,000	− 0.4
New Zealand	2,020,000	2,888,000	+43.0	349,000	258,000	−26.1	23,996,000	26,538,000	+10.6
Total	102,757,000	118,895,000	+15.7	63,918,000	81,142,000	+26.9	211,162,000	215,980,000	+ 2.3
Gain or loss	.....	+16,138,000	.....	.....	+17,224,000	.....	.....	+4,818,000	.....
14 countries	167,962,000	177,058,000	+ 5.4	110,097,000	102,738,000	−16.7	274,529,000	271,908,000	− 1.0
Gain or loss	.....	+9,096,000	.....	.....	−7,359,000	.....	.....	−2,621,000	.....

CATTLE.

The figures for the nine European countries show a decrease of 7,042,000 head, or 10.8 per cent, in the cattle population. They show an increase of 16,138,000 head, or 15.7 per cent increase in the other five countries. This gives a net increase in the 14 countries of 9,096,000 head, or 5.4 per cent. If recent data were available for Austria-Hungary, Russia, and the Balkan States, the increase in cattle as compared with the prewar number no doubt would be lowered.

HOGS.

The figures for the nine European countries show a decrease of 24,583,000 head, or 53.2 per cent, in the hog population. They show an increase of 17,224,000 head, or 29.6 per cent, in the other four countries. (Argentina is not included, for recent data regarding the number of hogs in that country are not available.) This gives a net decrease in the 13 countries of 7,359,000 head, or 6.7 per cent. If recent data were available for Austria-Hungary, Russia, and the Balkan States, the net decrease as compared with prewar numbers would no doubt be greater.

SHEEP.

The figures for eight European countries (Belgium is not included, for recent data regarding the number of sheep in that country are not available) show a decrease of 7,439,000 head, or 11.7 per cent, in the sheep population. They show an increase of 4,818,000 head, or 2.3 per cent, in the other five countries. This gives a net decrease in the 13 countries of 2,621,000 head, or about 1 per cent.

PRODUCTION OF MEAT IN THE UNITED STATES.

The following table gives the number of pounds of beef, pork, mutton, and goat meat produced in this country, as estimated from the slaughter of animals for the past six calendar years:

TABLE 9.—*Beef, pork, mutton, and goat meat produced in the United States, 1913 to 1918.*

[000,000 omitted.]

Year.	Beef.	Pork.	Mutton.	Goat.	Total.
	Pounds.	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
1913	6,401	9,133	738	8	16,280
1914	6,079	8,769	720	19	15,587
1915	6,253	9,825	626	17	16,721
1916	6,671	10,588	612	22	17,893
1917	7,384	8,450	473	18	16,325
1918	8,465	11,248	522	15	20,250

The above figures are in millions of pounds; that is, the total meat produced in the United States in 1918 as estimated was 20,250,000,000 pounds.

For comparison the following table gives the number of pounds of beef, pork, mutton, and goat meat produced in this country as estimated from the slaughter of animals for the first six months (January to June, inclusive) of 1918 and 1919.

TABLE 10.—*Beef, pork, mutton, and goat meat produced in the United States, first six months of 1918 and 1919.*

[000,000 omitted.]

Year.	Beef.	Pork.	Mutton.	Goat.	Total.
	Pounds.	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
1918	3,649	5,710	222	5	9,586
1919	3,210	6,532	266	4	10,012

EXPORTS OF MEAT AND MEAT PRODUCTS.

During the five years before the war exports of meat and meat products from the United States averaged about 1,100,000,000 pounds annually. Pork and pork products constituted about 81 per cent of these exports.

During 1915, 1916, and 1917 the average annual exports rose to above 1,800,000,000 pounds, of which pork and pork products constituted 76 per cent.

In 1918 the exports of meat and meat products rose to 3,058,000,000 pounds, or nearly three times the annual prewar exports. Pork and pork products constituted 74 per cent of these exports.

During the first six months of 1919 the export of meat and meat products amounted to 1,957,600,000 pounds, or 15 per cent more than during the first six months of 1918. Of this amount pork and pork products constituted 88 per cent. During the first six months of this year the export of pork and pork products increased by 37 per cent over the first six months of 1918, while beef and beef products decreased to 54 per cent of the exports during the first six months of last year.

What our foreign trade in meat and meat products will be in the future is impossible to predict with any degree of accuracy, owing to many factors which may affect it. The exports will probably decrease as compared with the past year, as the European countries increase their production of live stock toward the prewar production.

Other factors affecting our export trade are:

1. The rates of exchange, which in many cases are decidedly unfavorable to those countries most in need of our meat and meat products.

2. The campaign being waged in the European countries for increased production and decreased consumption.

3. The prices of meats and meat products in this country as compared with the prices in other countries having meats for export.

4. Available ocean tonnage for shipping from other countries.

So far as pork and pork products are concerned, it would appear that the bulk of the imports into the European countries must be from the United States, for of the 102,738,000 head in the 13 countries shown in the table, the United States had 75,587,000, or nearly three-fourths of all the hogs in the 13 countries. It will probably take the European countries two years to get back to prewar production of pork, and as their needs are great at present, the exportation of pork and pork products from this country during the next year will probably be greatly in excess of the prewar annual exports.

POULTRY.

In many of the European countries the poultry stock was greatly reduced during the war, but accurate information regarding the extent of such reduction is not obtainable. With favorable conditions, poultry production can be increased rapidly, and it is felt that prewar production of poultry in most of those countries will soon be resumed.

Complete data regarding the production of poultry in the United States are not available. What information has been obtained, however, indicates a production of poultry in the country fully as great, if not greater, than the prewar production.

At present increased production is not being urged. Emphasis is being placed on more efficient methods of production, leaving the matter of increased production to each individual.

RELATION OF FOREIGN EXCHANGE TO EXPORTS.

In any consideration of the probable foreign demand for American food products, based upon prewar consumption, the greatly increased ocean freight rates and the existing condition of the international money exchange can not be disregarded. The fact that the buying power of European money in terms of American money has decreased greatly is one of the great deterrents to the exportation of wheat and other food products from this country. Not only must the European purchaser of American food products pay a higher rate for freight and insurance, but he must pay for an abnormal rate of money exchange—at this time amounting, in the case of wheat, to even more than the increased cost of freight and insurance.

Before the war it cost about 5 cents a bushel to ship wheat from Atlantic coast ports to Great Britain, and the rate to continental

European ports was from 1 to 3 cents higher. At present the shipping cost to Great Britain is 27 to 28 cents per bushel; to continental European Atlantic ports, 34 cents; and to Mediterranean ports 44 cents. These figures, of course, are only approximate and cover both freight and insurance. It will be seen, therefore, that it now costs 22 to 36 cents more per bushel to ship wheat to Europe than it did before the war.

Added to this increased freight and insurance is the difference between the purchasing power of money in this country and that abroad. At the rates of exchange prevailing August 27, 1919, a bushel of wheat which costs $2.37½ f. o. b. at our Atlantic ports, in terms of our money abroad, would be worth abroad the equivalent of $2.78½ in British money, $3.68 in French money, $4.41 in Italian money, and $11.67 in German money. A study of these costs to European buyers, although it must be remembered that the cost of all commodities abroad is on a somewhat comparable basis, makes it clear that if the foreign exchange rate continues as it is, or becomes more abnormal, it will be likely to constitute a powerful stimulus for some foreign countries to increase production.